

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

GRAND TRAVERSE BAND OF
OTTAWA AND CHIPPEWA INDIANS;
GRAND TRAVERSE BAY WATERSHED
INITIATIVE, INC.; and ELK-SKEGEMOG
LAKES ASSOCIATION,

Civil Action No. _____

Hon. _____

Plaintiffs,

v.

BURNETTE FOODS, INCORPORATED

Defendant,

EXHIBIT 3

TO COMPLAINT



September 20, 2019

BFI-EGLE-2019-03

Mr. David Walters, P.E.
Michigan Department of Environment, Great Lakes, and Energy
Gaylord District Office
Water Resources Division
2100 West M-32
Gaylord, MI 49735

Mr. David Walters:

RE: Response to Violation Notice (VN) No. VN-009839 for Groundwater Discharge Permit Number GW1810211

References: 1) Letter from D. Walters, Michigan Department of Environment, Great Lakes, and Energy, to K. Kalchik, Burnette Foods, Inc., "Violation Notice VN-009839, Groundwater Discharge Permit Number GW1810211, Site Name: Burnette Foods Inc-Elk Rapids," VN No. VN-009436, dated August 21, 2019.

This letter provides Burnette Foods, Inc.'s (BFI) response to Violation Notice (VN) No. VN-009436 issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division (WRD) for the BFI – Elk Rapids facility.

By Reference 1, EGLE transmitted a violation notice to BFI.

Enclosure 1 to this letter provides a response to the violation notice. Enclosure 2 provides the BFI – Elk Rapids Sampling & Analysis Plan.

Please contact Kevin Kalchik at (231) 264-8116 or kkalchik@burnettefoods.com with any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Bob Sherman, Jr.", with a long horizontal line extending to the right.

Bob Sherman, Jr.
Owner

BURNETTEFOODS.com

200 State Street
PO Box 887
East Jordan, MI 49727
231.536.2284
231.536.7524

701 US-31 South
PO Box 128
Elk Rapids, MI 49629
231.264.8116
231.264.9597

4856 First Street
New Era, MI 49446
231.861.2151
231.861.4068

87171 County Road 687
Hartford, MI 49057
269.621.3181
269.621.4504

Burnette Farms
8469 Ridge Road
East Jordan, MI 49727
231.582.7403

Enclosures:

1. Burnette Foods, Inc. Response to Violation Notice No. VN-009839
2. Sampling & Analysis Plan, V1.0 for Burnette Foods, Inc. – Elk Rapids Facility, September 2019

c: K. Rendon, EGLE (e-mail only)
E. Chatterson, EGLE (e-mail only)
J. Pelizzari, BFI Chief Operating Officer (e-mail only)
R. Pollister, BFI – Elk Rapids Plant Manager (e-mail only)
J. Hewit, BFI – Elk Rapids Assistant Plant Manager (e-mail only)
K. Kalchik, BFI Plant Engineer (e-mail only)
E. Gerber, Lakeshore Environmental, Inc. (e-mail only)

ENCLOSURE 1 to BFI-EGLE-2019-03

RESPONSE TO VIOLATION NOTICE (VN) No. VN-009839

By letter dated August 21, 2019, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) transmitted Violation Notice (VN)-009839, to Burnette Foods, Inc. (BFI) – Elk Rapids. A narrative description of the BFI Elk Rapids wastewater system is provided below, followed by a corrective action plan for items requested in the violation notice.

Overall, BFI continues to expend significant cost and effort to maintain environmental quality at the wastewater treatment and groundwater discharge system.

Background

Summary of Existing System, at Time of Inspection

The BFI wastewater system, under Groundwater Discharge Permit Number GW1810211 (GWDP), receives fruit processing wastewater and stormwater from facility parking areas/roof drains. Absolutely no sanitary wastewater is directed to the onsite processing wastewater treatment system and/or groundwater discharge system. All sanitary waste is discharged directly to the Village of Elk Rapids municipal system.

The wastewater treatment system at BFI Elk Rapids consists of screening, impoundment, and soil treatment through land application prior to final discharge to the groundwater. Wastewater from the production facility is directed to the pump house where course material is removed by pumping the effluent over a hydroseive. Wastewater is then directed to two impoundment basins, separated by a center bulkhead. The impoundment basins are not designed, configured, or required by permit to be aerated, however mixing equipment has been used to maintain movement and improve overall system performance. At the time of inspection, mixing equipment was present in the form of pumps with fabricated venturi aeration attachments.

Previously, surface aerators have been used for mixing at these impoundment basins. However, operational concerns arose in the winter season which was compounded by a permanent change in production activities beginning in February 2018. These concerns led to the current configuration which provides mixing with less air entrainment for cold weather operations.

Additionally, lift stations at BFI Elk Rapids have recently been equipped with drop-in air-powered wet well mixers with favorable results.

Land Application System Improvements

Application rates to spray application sites exceeding discharge permit limits were observed in the November and December 2018 timeframe. In response, BFI Elk Rapids installed additional discharge hydrants in the spray field in January 2019 to allow for better discharge distribution of wastewater. This did not completely eliminate application rate violations but did reduce violation frequency and improve environmental conditions by more evenly distributing discharge to available acreage. BFI will continue site and operational improvements in response to land application permit violations.

ENCLOSURE 1 to BFI-EGLE-2019-03

Spray field condition and health have been under constant consideration. Upgraded field equipment was purchased throughout 2019 to improve and maintain the health of the field(s). The Southwest field was worked up and reseeded in the Spring of 2019 to reduce soil compaction which could have resulted in reduced soil water infiltration rates. BFI will continue to work up and reseed fields to ensure their continued health.

During the 2018/2019 winter, BFI commenced investigation of improved discharge methods and systems in response to land application concerns. Design of an underground discharge system started in the Spring of 2019 to evenly distribute pretreated effluent to all available acres and eliminate discharge violations on existing fields. This was approved by the Michigan Department of Environmental Quality (now EGLE) in April 2019 by way of an updated Discharge Management Plan (DMP). The underground drip layout proposes discharge to Fields #37 and #38, which were previously approved for spray irrigation under the existing GWDP. The new drip irrigation system will consist of several discharge zones controlled with automatic valves to distribute wastewater in accordance with permit requirements and the approved DMP.

Final design and implementation of the proposed underground drip system is ongoing. Work on a complete system design will continue through the 2019-2020 winter and construction is expected to start in 2020.

Additional Planned Improvements

A course bubble distributed aeration system has been designed for the impoundment basins. Competitive equipment bids were solicited from vendors and reviewed, leading to the placement of an order for a blower package and air diffusers. The system is scheduled to be installed and evaluated in one pond this fall, with expansion of the system to the second pond soon after, pending performance results.

Timeline for Wastewater Treatment System Improvements, 2017 - present

A timeline of recent improvements is provided below for convenience:

- 2/2/18 – BFI sold maraschino cherry business to Gray & Company
- 2017/2018 Winter – Changed surface aerators from continuous to intermittent operation
- 2/17/18 – A pump was purchased to test for replacement of surface aerators for winter operations in one pond
- 8/21/18 – A drop-in air-powered wet well mixer was purchased for a lift station
- 8/27/18 – A drop-in air-powered wet well mixer was purchased for a second lift station based on the success of the first
- 10/5/18 – Three additional pumps were purchased for replacement of surface aerators for winter operations in both ponds
- 1/7/19 – Additional discharge hydrants installed in spray fields
- 3/5/19 – A tractor was purchased to upgrade from an existing unit
- 4/19/19 – ENV-022-101, Revision C, "Discharge Management Plan for Permit No. GW1810211," including addition of underground drip, approved in an e-mail from Vincent Josik, EGLE
- 4/23/19 – A 5 bottom chisel plow was purchased to upgrade from an existing unit

ENCLOSURE 1 to BFI-EGLE-2019-03

- 6/7/19 – Seed was purchased to reseed southwest field
- 6/24/19 – Additional seed was purchased to reseed southwest field
- 7/15/19 – A mower was purchased to upgrade from an existing unit
- 8/21/19 – A blower and air diffusers were purchased for a new distributed aeration system in one pond
- 9/4/19 – Piping and fittings were purchased for a new distributed aeration system in one pond

ENCLOSURE 1 to BFI-EGLE-2019-03

Violation Notice VN-009839

The violation notice (VN) dated August 21, 2019 was in response to a July 22, 2019 complaint that *“the discharge of the spray irrigation system may be impacting the surface water in the creek downstream of the monitoring point EQ-2. Specifically, the complaint listed concerns for foam with staining in the creek and Escherichia coli (E. coli) bacteria in the creek and Elk Lake.”* As a general note, BFI disagrees that this claim is justifiably the responsibility of BFI for the reasons outlined below.

“Foam” is a well-known natural occurrence that commonly occurs in waters with high organic content, such as wetlands, and is most often a result from a natural die-off of aquatic plants/organic material.¹ Furthermore, northern Michigan waters are known to contain high levels of tannin, which creates a natural brown tint to the water and foam in these areas. Thus, BFI contends that the “foam with staining” is not the fault of the BFI Spray Irrigation system.

Additionally, BFI requests any additional information or analysis related to the statement regarding the presence of E. coli as a result of the wastewater treatment/groundwater discharge system. E. coli is released into the environment through deposition of fecal material and thus an indicator of fecal contamination. As previously stated, all sanitary waste/wastewater at the BFI Elk Rapids facility is directed to the Village of Elk Rapids, i.e. the municipality. Absolutely no sanitary waste/wastewater is directed to the process wastewater lagoon or to the spray fields. Thus, there is no potential for E. coli as a result of spray irrigation practices. In the event that E. coli was analyzed and determined to be present, it is mostly likely from a failed septic system within the vicinity of the sample location. BFI does not have a septic system for their facility and is not responsible for operations at neighboring properties. This has been previously addressed with State personnel (then DNR or DEQ) and BFI does not intend to raise this issue again.

The August 21, 2019 VN also noted several violations between July 2018 and July 2019. BFI understands these are violations of the permit and will continue to expend significant effort to remain protective of the environment, as outlined above. Where warranted, modifications to the permit will be requested during the upcoming reissuance period.

Lastly, the above referenced VN implied that the wastewater treatment system at BFI included an “aeration tank and the plant”. This statement is not accurate. As discussed above, the BFI wastewater treatment system consists of screens, impoundment basins, and land application. The impoundment basins are permitted as such and were not designed or intended to include aeration. At times in the past, mixing/aeration equipment has been used for mixing within the basins. This was an extra effort by BFI to improve movement through the basins and reduce imbalanced solids accumulation, not to be misconstrued as a permitted part of the system’s basis of design.

BFI currently monitors appropriate parameters in the groundwater and surface water on a quarterly basis, in accordance with the GWDP. The current Sampling and Analysis Plan, provided as Enclosure 2, is more than sufficient to properly monitor the land application system.

¹ See Reference: “Foam, A Naturally-Occurring Phenomenon,” DEQ, 2016.

ENCLOSURE 1 to BFI-EGLE-2019-03

Response to VN Items

VN Item 1

“Prevent the recurrence of runoff from the spray irrigation system discharging to surface waters of the state.”

Corrective Action Plan for VN Item 1

BFI will continue to be diligent in preventing runoff from the spray irrigation system into surface waters of the state. Staff have been refreshed on the movement and placement of discharge equipment, and to increase field observation frequency immediately. Further, the fields will be maintained in accordance with good agricultural management practices which improves infiltration and overall health of the land application system.

During the inspection referenced in the VN, the Plant Manager was contacted immediately upon discovery of the observed runoff. A staff member was dispatched to switch sprinklers and investigate the function of the travelling sprinkler to ensure it was not stalled in place. We met this staff member on the service road during the field inspection on their way to address the issue. Staff were instructed to start travelling sprinklers further from the wetland area as an additional measure.

It must also be noted that hay was harvested on the spray site prior to the inspection, in accordance with the approved DMP. Harvesting hay increases the crop water demand and evapotranspiration² rate throughout the growing season which lowers the amount of water that must infiltrate into soils. Hay bales could be observed on edges of fields during the inspection as they had not been hauled offsite yet. The very recent harvest may have temporarily reduced infiltration rates, contributing to the runoff observed by EGLE. As stated during the inspection, runoff is not a regular occurrence at the spray site(s).

BFI has started systematically working up and reseeding spray fields as described in the front of this enclosure. This is expected to increase infiltration rates which will reduce runoff.

Improvements to the discharge system, including design of an underground drip system, are in progress as described in the front of this enclosure.

In addition to the above referenced system improvements, land application observation frequency has been increased to preclude repetition of the observed condition.

² Evapotranspiration is the combination of water transpired by the crop and water evaporating directly from the soil and plant surfaces.

ENCLOSURE 1 to BFI-EGLE-2019-03

VN Item 2

“Evaluate the impact of the discharge from the land-application site to the downgradient wetland and to the creek from monitoring point EQ-2 to Elk Lake. At a minimum, a sampling and analysis plan, with implementation schedule, shall be developed and submitted to the [Water Resources Division] WRD for review and approval[.] The sampling plan shall include sampling of the wetland between the land-application site and monitoring point EQ-2, and sampling of the creek from EQ-2 to Elk Lake. The sampling plan shall include analysis of the following parameters at a minimum: Biochemical oxygen demand, iron, manganese, arsenic, sodium, chloride, ammonia, nitrate, nitrite, dissolved oxygen, pH, phosphorus, and E. coli. The sampling plan shall also be conducted over a minimum period of time (i.e., month) and frequency (i.e., weekly). The purpose of the evaluation and the sampling and analysis plan is to determine if discharges and impacts to downgradient surface waters have occurred or are occurring. Thus, your proposed plan and evaluation must be sufficient for those purposes including assessment of the potential for E. coli, foam and discoloration in the surface waters to be coming from the Facility.”

Corrective Action Plan for VN Item 2

BFI will continue to collect samples of water entering Spencer Creek, as required by the GWDP via “Monitoring Point EQ-2, Surface Water”. At this time, additional sampling is considered excessive and unnecessary since the wastewater treatment/groundwater discharge system is being adequately and appropriately monitored under the current permit.

In accordance with GWDP # GW1810211, BFI collects quarterly water samples from potentially impacted surface waters in the vicinity of the spray field, i.e. “Monitoring Point EQ-2, Surface Water”. Samples are analyzed for several of the requested parameters, including BOD, sodium, chloride, ammonia, nitrate, nitrite, DO, pH, and total phosphorus. To date, there have been no violations or concerns regarding water quality. These results are submitted to EGLE via MiWaters, as required by the permit.

The potential for impact to surface waters of the state has been previously addressed with State personnel, then DNR or DEQ, now EGLE, and BFI does not intend to continue to discuss an issue that has been considered resolved. Similar discussions to the one in the August 21 VN date back as far as 1990, when Mr. John T. Kraft of the Surface Water Quality Division collected several water samples in response to neighbor complaints. At that time, the results were determined to be inconclusive due to the natural environment of the swamp/wetland area. The 1990 report states “This swamp drainage is going to contain organic matter in various stages of decomposition. Thus it would be hard to distinguish it from the organic matter in the Burnette Foods process wastewater, which would also be decomposing over time.” These conditions remain the same today, thus continued discussion and analysis would be repetitive and unproductive. The system is adequately monitored under the conditions of the GWDP.

As discussed in the above sections, E. coli will not be sampled in association with the spray irrigation approved under GWDP. With regard to metals analysis, iron, manganese, and arsenic are naturally occurring in soils but mobilize in persistent anaerobic conditions, such as saturated soils. Thus, wetlands have naturally occurring metals present in the groundwater/surface water and any additional sampling or analysis would be inconclusive, same as before. BFI currently monitors appropriate metals parameters in the groundwater on a quarterly basis, in accordance with the GWDP. The monitoring well

ENCLOSURE 1 to BFI-EGLE-2019-03

network and current Sampling and Analysis Plan, provided in Enclosure 2, are more than sufficient to properly monitor the land application system. Thus, an additional sampling and analysis plan is not warranted at this time.

ENCLOSURE 1 to BFI-EGLE-2019-03

VN Item 3

Prevent application rate exceedances of the irrigation system at the land-application sites.

Corrective Action Plan for VN Item 3

BFI has been taking steps to prevent application rate exceedances of the irrigation system, as highlighted in the front of this enclosure. Additional discharge hydrants were installed in the spray fields as described in the front of this enclosure. BFI is also working on the design of an underground drip system as described in the front of this enclosure.

BFI will continue to rotate existing discharge hydrants during periods with snow cover and use travelling sprinklers during periods without snow to distribute spray discharge across available fields as evenly as possible. Design of upgraded systems will continue through the 2019-2020 winter and physical work is expected to start in 2020.

ENCLOSURE 1 to BFI-EGLE-2019-03

VN Item 4

Develop an operation and maintenance manual.

Corrective Action Plan for VN Item 4

An Operation and Maintenance Manual (O&M Manual) will be completed no later than November 30, 2019.

Sampling & Analysis Plan, V1.0
for
Burnette Foods, Inc. – Elk Rapids Facility
Elk Rapids Twp., Antrim Co., Michigan

September 2019

Prepared for:

Michigan Department of Environment, Great Lakes, and Energy

P.O. Box 30017, Lansing, Michigan 48909

and

Burnette Foods, Inc.

701 US 31, Elk Rapids, Michigan 49629

Lakeshore Environmental, Inc. Project Number:

18-628

Grand Rapids Office

800 Monroe Avenue NW, Suite 120

Grand Rapids, Michigan 49503

Phone: 800.844.5050

www.MY-LEI.com



Table of Contents

Appendices.....	2
1.0 Introduction	3
2.0 Groundwater Monitoring.....	4
2.1 Sampling Location and Frequency	4
2.2 Sampling Methods	4
2.3 Sample Analysis.....	4
2.4 Analytical Methods	5
3.0 Effluent Quality Monitoring	7
3.1 Sampling Location, Analysis, and Frequency	7
3.2 Sampling Methods	7
3.3 Analytical Methods	7
4.0 Other Monitoring	8
4.1 Flow Volume	8
4.2 Surface Water	8
4.3 Soils	8
4.4 Facility Operation and Maintenance.....	9

Appendices

Appendix A - Site Figure(s)

1.0 Introduction

This document has been prepared pursuant to Rule 323.2223 of the Part 22 Groundwater Rules to outline a groundwater sampling and monitoring program to be implemented at Burnette Foods, Inc. (BFI) of Elk Rapids, Michigan in accordance with their Groundwater Discharge Permit (No. GW1810211, issued June 1, 2017).

Monitoring data collected pursuant to an approved Sampling and Analysis Plan will be submitted to the Michigan Department Environment, Great Lakes, and Energy (EGLE) via the MiWaters online reporting system.

Appendix A contains current site figures; **Figure 1** is a Site Location Map and **Figure 2** is a Site Map depicting monitoring well locations, wastewater spray irrigation fields, and other pertinent site information.

2.0 Groundwater Monitoring

2.1 Sampling Location and Frequency

Samples are to be collected quarterly and annually, as applicable, from monitoring wells located hydraulically up and down gradient of the approved discharge areas. Quarterly sampling events shall typically occur in February, May, August, and November (or within two weeks of these periods as access, weather, and scheduling permits). Quarterly sampling events include the following monitoring wells:

- Upgradient: MW-2
- Downgradient: MW-1, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11

Annual sampling events will occur during the month of August. Annual sampling events include the wells mentioned above with analysis of additional parameters beyond those analyzed in the quarterly sampling events.

As noted above, monitoring well locations are shown on Figure 2.

2.2 Sampling Methods

Prior to sampling, monitoring wells will be unlocked and opened to allow for equilibration to the atmosphere. Following stabilization, the static water level will be measured and recorded with an electronic static water level meter accurate to 0.01-feet. If not known, the total depth of each well will be measured to establish the screened interval.

Groundwater samples are collected in accordance with the US EPA low flow (minimal disturbance) sampling procedures. As such, metals analysis will be for total metals only, unless stable yet elevated turbidity (>10 NTU) is encountered.

Following sample collection and preservation, sample containers are placed into a chilled cooler pending delivery to the laboratory. All samples will be promptly labeled and a completed chain-of-custody (COC) form must accompany all groundwater samples.

Samples will be delivered to the laboratory within the hold time dictated by the analysis methods.

2.3 Sample Analysis

Table 1 (next page) summarizes required analysis for each monitoring well and the frequency of that analysis.

Table 1: Groundwater Monitoring Analysis Frequency

	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11
Gradient Location:	D	U	D	D	D	D	D	D	D	D	D
Static Water Level (SWL)	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
pH	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Specific Conductance	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Total Inorg. Nitrogen	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Ammonia Nitrogen	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Nitrate Nitrogen	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Nitrite Nitrogen	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Chloride	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Sodium	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Total Phosphorus	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Calcium	A	A	A	A	A	A	A	A	A	A	A
Iron	A	A	A	A	A	A	A	A	A	A	A
Magnesium	A	A	A	A	A	A	A	A	A	A	A
Manganese	A	A	A	A	A	A	A	A	A	A	A
Potassium	A	A	A	A	A	A	A	A	A	A	A
Dissolved Oxygen	A	A	A	A	A	A	A	A	A	A	A
Bicarbonate Alk.	A	A	A	A	A	A	A	A	A	A	A
Sulfate	A	A	A	A	A	A	A	A	A	A	A

*U – Upgradient**D – Downgradient**Q – Quarterly**A – Annually*

As outlined in the GWDP and in the table above, some parameters will be tested on an annual basis only. These parameters are known to be slow changing and annual sampling is sufficient to understand their presence and/or behavior in the groundwater at BFI Elk Rapids. Annual sampling rounds include all of the parameters tested during quarterly sampling.

2.4 Analytical Methods

Except for field-measured parameters, groundwater samples will be analyzed by a state-certified laboratory subcontractor for the parameters summarized in Table 2 (next page).

Table 2: Groundwater Monitoring Analytical Methods

	Limitation	Units	Monitoring Frequency	Sample Type	Lab Method	Hold Time
SWL	(report)	USGS-ft.	Quarterly	Measure	--	--
pH	(6.5-9.0)	s.u.	Quarterly	Grab	Field	ASAP*
Specific Conductance	(report)	umhos/cm	Quarterly	Grab	Field	ASAP*
Total Inorg. Nitrogen	5.0	mg/L	Quarterly	Calculation	Calculation	48 hours
Ammonia Nitrogen	(report)	mg/L	Quarterly	Grab	EPA 350.1	28 days
Nitrate Nitrogen	(report)	mg/L	Quarterly	Grab	EPA 300	48 hours
Nitrite Nitrogen	0.5	mg/L	Quarterly	Grab	EPA 300	48 hours
Chloride	(report)	mg/L	Quarterly	Grab	EPA 300	28 days
Sodium	(report)	mg/L	Quarterly	Grab	EPA 200.7	6 months
Total Phosphorus	1.0	mg/L	Quarterly	Grab	EPA 365.4	28 days
Calcium	(report)	mg/L	Annually	Grab	EPA 200/6000	6 months
Iron	(report)	ug/L	Annually	Grab	EPA 200/6000	6 months
Magnesium	(report)	mg/L	Annually	Grab	EPA 200/6000	6 months
Manganese	(report)	ug/L	Annually	Grab	EPA 200/6000	6 months
Potassium	(report)	mg/L	Annually	Grab	EPA 200/6000	6 months
Dissolved Oxygen	(report)	mg/L	Annually	Grab	Field	ASAP*
Bicarbonate Alk.	(report)	mg/L	Annually	Grab	EPA 2320-B	14 days
Sulfate	250	mg/L	Annually	Grab	EPA 300	28 days

* Field readings for indicator parameters are collected in real time throughout sampling, as required by low-flow sampling protocol

Dissolved oxygen, pH, and specific conductance are measured in the field with a portable meter, in accordance with low-flow sampling protocol. Samples are analyzed using standard laboratory methods for all other parameters, as noted in the table above. In addition, laboratory analytical methods will be specified on all laboratory reports, which will be maintained onsite and made available to EGLE as required.

3.0 Effluent Quality Monitoring

3.1 Sampling Location, Analysis, and Frequency

Representative wastewater grab samples are collected from the wastewater impoundment basin prior to land application. In accordance with the GWDP and DMP, wastewater samples will be collected according to the schedule outlined in Table 3, below.

Table 3: Effluent (EQ-1) Monitoring Analysis Frequency

	Limitation	Units	Monitoring Frequency	Sample Type	Lab Method	Hold Time
Effluent (EQ-1)						
Flow	425,000	GPD	Daily	Direct Measurement	N/A	N/A
Flow	15,000,000	GPY	Annually	Calculation	Calculation	N/A
Total Inorg. Nitrogen	5.0	mg/L	2x Monthly*	Calculation	Calculation	N/A
Ammonia Nitrogen	(report)	mg/L	2x Monthly*	Grab	EPA 350.1	28 days
Nitrate Nitrogen	(report)	mg/L	2x Monthly*	Grab	EPA 300	48 hours
Nitrite Nitrogen	(report)	mg/L	2x Monthly*	Grab	EPA 300	48 hours
pH	(report)	s.u.	2x Monthly*	Grab	SM 4500-H ⁺	15 minutes
BOD	(report)	mg/L	2x Monthly*	Grab	SM 5210 B	48 hours
Dissolved Oxygen	(report)	mg/L	2x Monthly*	Grab	EPA 360.2	8 hours
Chloride	500	mg/L	2x Monthly*	Grab	EPA 300	28 days
Sodium	400	mg/L	2x Monthly*	Grab	EPA 200.7	6 months
Total Phosphorous	10	mg/L	2x Monthly*	Grab	EPA 365.4	28 days

*During Discharge

3.2 Sampling Methods

Samples will be collected in laboratory-provided containers and preserved in accordance with laboratory-specific methods, in accordance with standard preservation and analysis procedures. Filled and labeled sample containers, accompanied by completed chain-of-custody forms, will be promptly placed in an iced cooler or refrigerator for shipment or delivery to a laboratory within the hold time dictated by the lab analysis methods.

3.3 Analytical Methods

Dissolved oxygen and pH will be measured onsite. All other parameters will be analyzed using standard laboratory methods, as noted above. In addition, laboratory analytical methods will be specified on all laboratory reports, which will be maintained onsite and made available to EGLE as required.

4.0 Other Monitoring

4.1 Flow Volume

In accordance with the GWDP, the volume of wastewater generated and discharged will be monitored and recorded daily. Flow meters are used to track wastewater discharge volumes. The volume of land applied wastewater will be monitored and reported, as required.

4.2 Surface Water

Representative surface water grab samples are collected at the culvert under Elk Lake Road, as identified on Figure 2, for the purpose of monitoring any potential discharge to surface waters of the state as a result of land application practices. In accordance with the GWDP and DMP, surface water samples will be collected according to the schedule outlined in Table 4, below.

Table 4: Surface Water (EQ-2) Monitoring Analysis Frequency

	Limitation	Units	Monitoring Frequency	Sample Type	Lab Method	Hold Time
Surface Water (EQ-2)						
Total Inorg. Nitrogen	(report)	mg/L	Quarterly*	Calculation	Calculation	N/A
Ammonia Nitrogen	(report)	mg/L	Quarterly*	Grab	EPA 350.1	28 days
Nitrate Nitrogen	(report)	mg/L	Quarterly*	Grab	EPA 300	48 hours
Nitrite Nitrogen	(report)	mg/L	Quarterly*	Grab	EPA 300	48 hours
pH	(report)	s.u.	Quarterly*	Grab	SM 4500-H ⁺	15 minutes
BOD	(report)	mg/L	Quarterly*	Grab	5210 B-2011	48 hours
Dissolved Oxygen	(report)	mg/L	Quarterly*	Grab	EPA 360.2	8 hours
Chloride	(report)	mg/L	Quarterly*	Grab	EPA 300	28 days
Sodium	(report)	mg/L	Quarterly*	Grab	EPA 200.7	6 months
Total Phosphorous	(report)	mg/L	Quarterly*	Grab	EPA 365.4	28 days

**During Discharge*

Samples will be collected in laboratory-provided containers and preserved in accordance with laboratory-specific methods. Filled and labeled sample containers, accompanied by completed chain-of-custody forms, will be promptly placed in an iced cooler or refrigerator for shipment or delivery to a laboratory within the hold time dictated above. Dissolved oxygen and pH will be measured onsite with portable meters. All other parameters will be analyzed using standard laboratory methods, as noted above. In addition, laboratory analytical methods will be specified on all laboratory reports, which will be maintained onsite and made available to EGLE as required.

4.3 Soils

Soil samples are collected annually and analyzed for the following parameters:

Table 5: Soils Monitoring Analysis Frequency

	Limitation	Units	Monitoring Frequency	Sample Type
Soil S-1 (IRR-36 SC, -36 SE, -36 SW, -37, -38, -39)				
Bray P1 (available soil phosphorus)	(report)	mg/kg	Annually	Composite*
Sodium	(report)	mg/kg	Annually	Composite*
pH	(report)	s.u.	Annually	Composite*
Cation Exchange Capacity	(report)	meq/100 grams	Annually	Composite*

** One soil sample shall be taken from each field labeled IRR-37, -38, and -39. A composite sample shall be taken from IRR-36 SC, -36 SW, -36 SE*

A vertical 8-inch core will be used to take 20 or more cores in a random pattern spread evenly across each field area. Compositing soil samples will be analyzed using the Bray P1 method for total phosphorus. Samples will be analyzed using standard laboratory methods for all other parameters. In addition, laboratory analytical methods will be specified on all laboratory reports, which will be maintained onsite and made available to EGLE as required.

4.4 Facility Operation and Maintenance

Facility operation and maintenance will be conducted in accordance with the Operation and Maintenance Manual. Additional monitoring and reporting shall be conducted in accordance with the permit at the Lagoon (i.e. impoundment basin) and Irrigation Fields; including those listed in Table 6.

Table 6: Observation Monitoring Analysis Frequency

	Monitoring Frequency	Sample Type
Lagoon		
Freeboard - 2 ft. Minimum	Weekly	Visual Observation
Control Structures	Weekly	Visual Observation
Dike Integrity	Weekly	Visual Observation
Vegetation Control	Weekly	Visual Observation
Nuisance Animals	Weekly	Visual Observation
Odors	Weekly	Olfactory Observation
Irrigation Fields		
Ponding	Daily During Discharge	Visual Observation
Pooling	Daily During Discharge	Visual Observation
Erosion	Daily During Discharge	Visual Observation
Odors	Daily During Discharge	Olfactory Observation
Piping	Daily During Discharge	Visual Observation
Sprinkler Heads	Daily During Discharge	Visual Observation

Appendix A

- | | | |
|----------|---|-------------------|
| Figure 1 | - | Site Location Map |
| Figure 2 | - | Site Map |



